

CARDIAC IMPLICATIONS OF PERIODONTAL



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USN

WHERE IT ALL STARTED

- MATTILA & OTHERS (1989)
 - First to link dental health and the heart
 - Myocardial infarction patients
 - Caries, Periodontal Disease, or both?
 - Classic risk factors?
- MATTILA (1993)
 - Pathogenic mechanism

THANK YOU DR CHOW!

- JADA EDITORIAL (1998)
 - “Research has identified periodontal disease as a major risk factor for cardiovascular disease and stroke.”
 - “Practitioners, get ready!”
- DR CHOW
 - “I really want to know more.”

LOESCHE

1995

- NHANES Study
- PD 1.7 X CHD
- PD 2.6 X Dead
- Hypothesis

1998

- Review of literature
- U.S. Veterans
- Statistically significant “association”
- Risk indicators
- *S. sanguis*

PATHOGENESIS

REVIEW

- Pathogenesis is still hypothetical
- Bacteria produce destructive toxins
 - gram negative = lipopolysaccharide
 - gram positive = mucopeptide complex
- Toxins attract White Blood Cells
- Accumulation is inflammation
- Inflammation is destructive as well

PERIODONTIUM

- The soft tissue is in intimate contact with the tooth and plaque.
- The junctional epithelium is non-keratinized with exposed intercellular spaces.
- The tissue is highly vascularized and plaque products have access to it.

PERIODONTIUM

- The plaque products provoke increased permeability and exudation.
- Inflammatory components and mediators are present in the gingival crevicular fluid.
- Periodontal disease appears to involve preferential diffusion through the junctional epithelium.

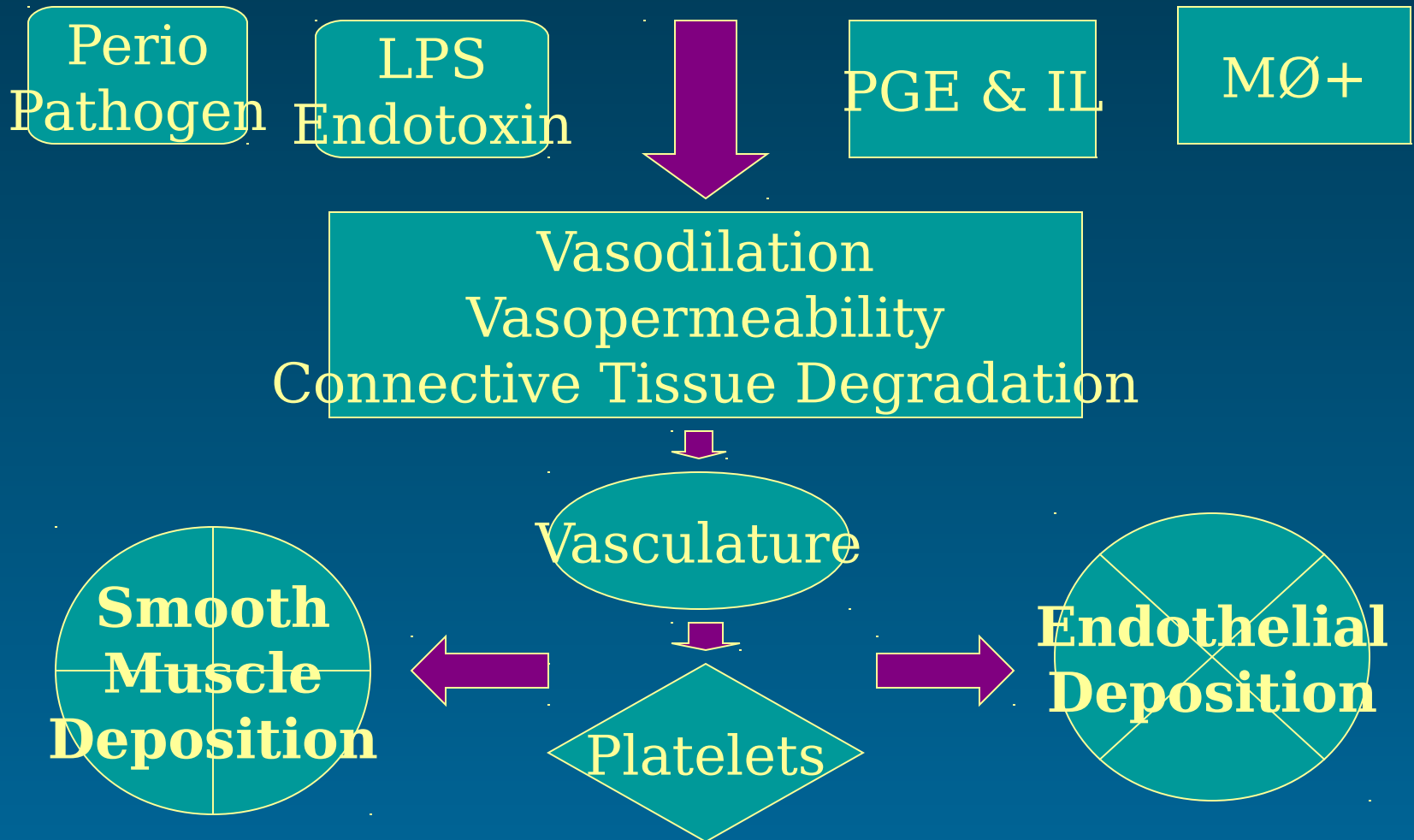
BECK

- Periodontal disease represents a previously unrecognized risk factor for atherosclerosis and thromboembolic events.
- Common risk factors
- Common etiologic pathway
- Common mechanism

BLOOD MONOCYTE **PHENOTYPE**

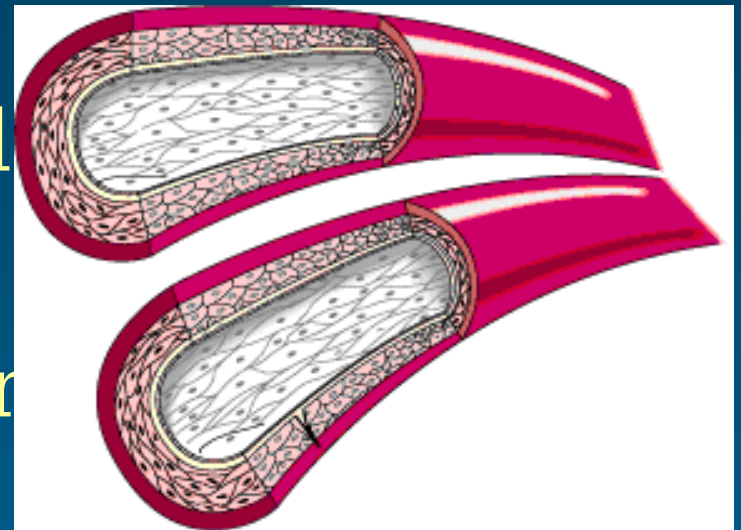
- MØ+ phenotype
- Common inflammatory response trait
- Abnormally high inflammatory reaction
- Early-onset and Refractory Periodontitis
- Insulin-dependent Diabetes Mellitus
- Cascade of action

BECK'S CASCADE



INFLAMMATORY MEDIATORS

- PGE, IL, & TNF
- Gingival crevicular fluid
- MØ+ secrete 3-10X more
- NSAIDs?



THE PLAYERS

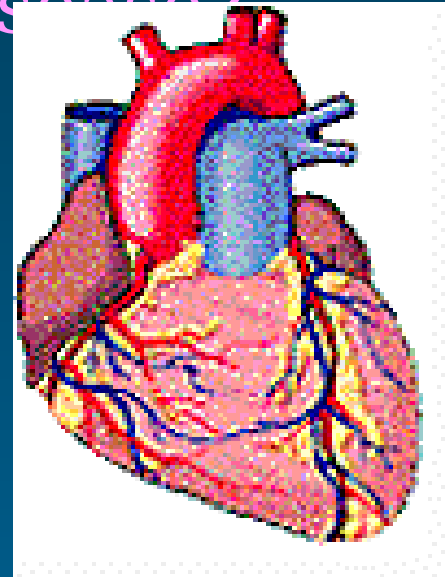
- *Streptococci*
- *Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis, and Treponema denticola.*
- Platelet aggregation associated protein (PAAP)
- Induce platelet aggregation

FRIEND OR FOE?

- Commensal vs. Opportunistic
- Bacteremia
 - Periodontal Disease
 - Toothbrushing 40%
 - Extractions 60%
 - Periodontal surgery 88%
- *P. gingivalis* & *S. sanguis*

RISK FACTORS

- Family History?
- Age?
- Social Class?
- Smoking?
- Cholesterol?
- Diabetes?
- Hypertension?
- Periodontal Disease?

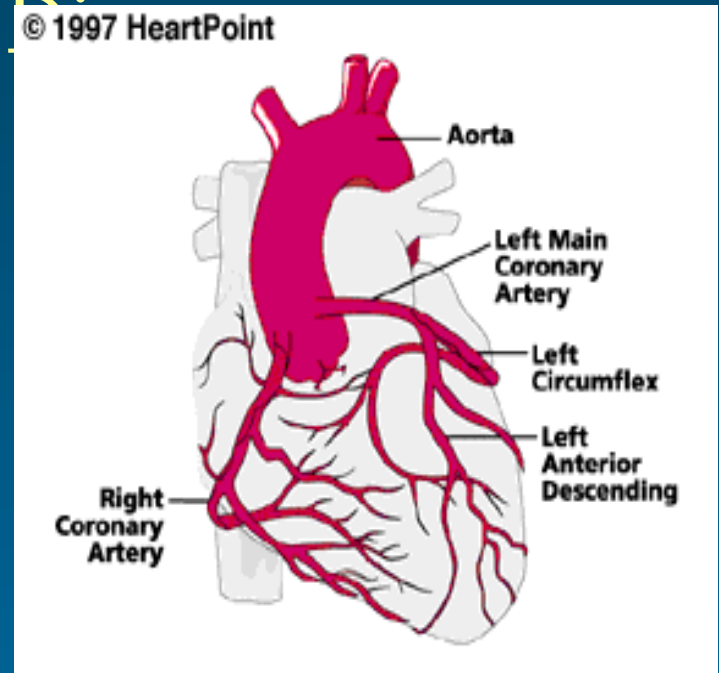


AAP

- 1998 Position Paper
- Risky patients for PD
 - IDDM, Neutropenia, osteopenia, & stress
- Risky patients for CHD
 - HTN, Hypercholesterol, smokers, etc.
- Perio patients risky for CHD?
- New rationale for periodontal therapy?

AAP

- 1996 Informational Paper
- Periodontal Management of Patients with Cardiovascular Disease
- Recommendations:
 - Medical History
 - Physical Examination
 - Vital Signs
 - Medical Consultation



AHA

FACTORS

- Age
- Sex
- Heredity

FACTOIDS

- Smoking
- Cholesterol
- Blood Pressure
- Physical Inactivity
- Obesity
- Diabetes Mellitus
- Stress
- Socioeconomic Status

**American Heart
Association®**

*Fighting Heart Disease
and Stroke*





- Oral Risk Management Protocol
 - Caries and Periodontal Protocol
- AHA
 - SBE Prophylaxis!
- Periodontal Pharmacotherapeutics
 - What to use and when?

EUROPEAN WORKSHOP

- Adjunctive Antibiotics
- Adjunctive Antiseptics
- Adjunctive Antimicrobials
- Others?

PERIODONTICS WORKSHOP

- Sustained Release Therapies
 - tetracycline, doxycycline, minocycline
 - metronidazole, chlorhexidine
 - stannous fluoride, methylene blue, ofloxacin
- Systemic Antibiotics
 - EOP (PPP, JP, & RPP) & RP
- Others...

MEDICAL APPROACH

- Mechanical
- Chemical
 - C & S, DNA, & GCF
- Environmental
 - Risk factors & factoids
- Maintenance

FDA APPROVED

PERIOSTAT

ATRIDOX

PERIOCHIP

PERIOSTAT

*(doxycycline
hyclate)*

- Suppresses collagenase
- Inhibits host response
- 20 mg capsule
- bid for months



ATRIDOX

(10% doxycycline hyclate)

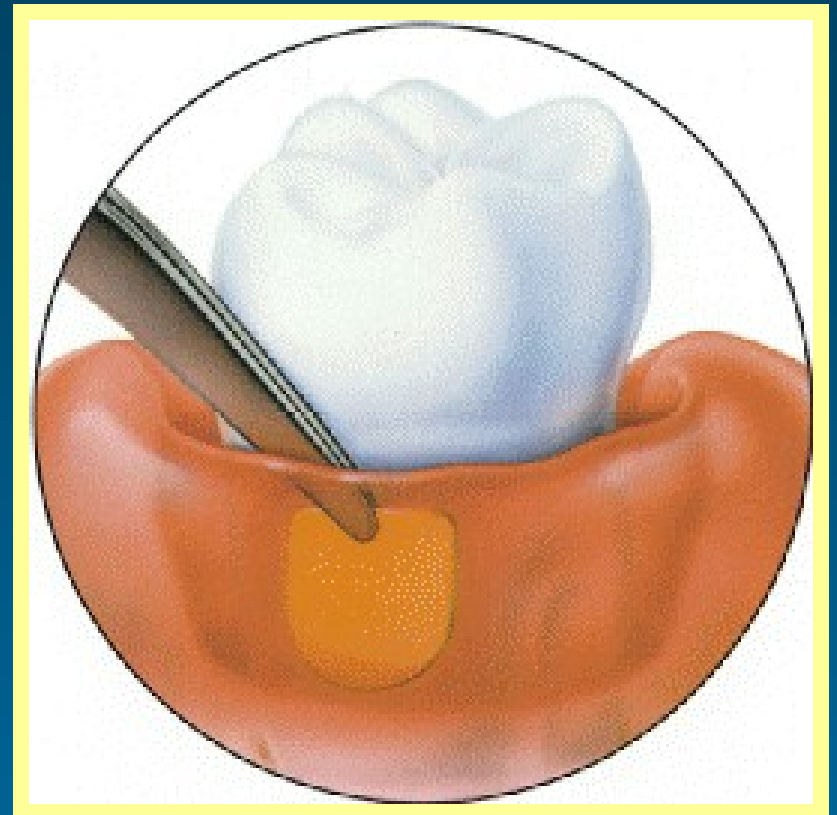


- Sustained release gel
- suppresses collagenase
- 1 application X 7 days

PERIOCHIP

(chlorhexidine digluconate)

- Biodegradable chip
- > 5 mm pockets
- Maintenance supplement



WHAT WE KNOW

- If you have MØ+, you have potential
- Plaque in the gums, plaque in the arteries
- Bacterial endotoxins & Host cytokines
- CHD yes, CVA maybe
- ASA/NSAIA benefits
- PD linked to many systemic diseases

DOCTOR DENTIST

- Paradigm shift
 - Medical instead of mechanical
- Diagnosis
 - The tools are changing
- Rationales
 - Now have systemic implications
- The Next Ten Years?